

(43) International Publication Date
23 March 2006 (23.03.2006)

(10) International Publication Number
WO 2006/030937 A1

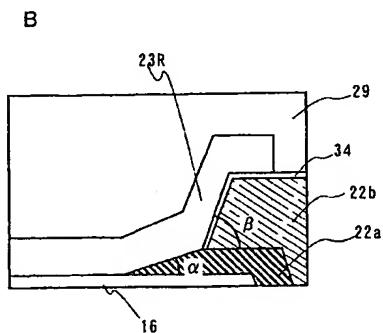
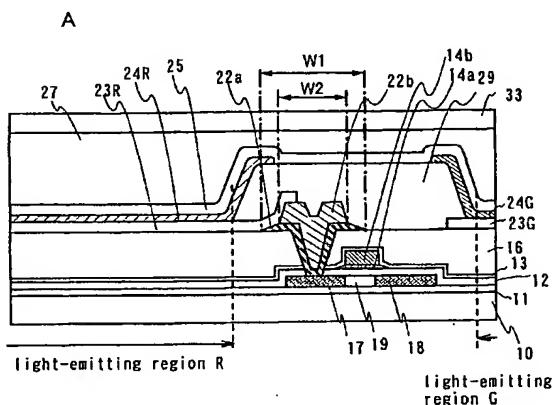
- (51) **International Patent Classification:**
H01L 29/786 (2006.01) *G02F 1/1368* (2006.01)
H01L 21/336 (2006.01)
- (21) **International Application Number:**
PCT/JP2005/017223
- (22) **International Filing Date:**
13 September 2005 (13.09.2005)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
2004-267673 15 September 2004 (15.09.2004) JP
- (71) **Applicant (for all designated States except US):** SEMI-CONDUCTOR ENERGY LABORATORY CO., LTD.
[JP/JP]; 398, Hase, Atsugi-shi, Kanagawa, 2430036 (JP).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** HIGAKI, Yoshinari
[JP/JP]; c/o SEMICONDUCTOR ENERGY LABORATORY CO., LTD., 398, Hase, Atsugi-shi, Kanagawa, 2430036 (JP). SAKAKURA, Masayuki [JP/JP]; c/o

SEMICONDUCTOR ENERGY LABORATORY CO., LTD., 398, Hase, Atsugi-shi, Kanagawa, 2430036 (JP). YAMAZAKI, Shunpei [JP/JP]; c/o SEMICONDUCTOR ENERGY LABORATORY CO., LTD., 398, Hase, Atsugi-shi, Kanagawa, 2430036 (JP).

- (81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,

[Continued on next page]

(54) Title: SEMICONDUCTOR DEVICE



(57) Abstract: It is an object of the present invention to connect a wiring, an electrode, or the like formed with two incompatible films (an ITO film and an aluminum film) without increasing the cross-sectional area of the wiring and to achieve lower power consumption even when the screen size becomes larger. The present invention provides a two-layer structure including an upper layer and a lower layer having a larger width than the upper layer. A first conductive layer is formed with Ti or Mo, and a second conductive layer is formed with aluminum (pure aluminum) having low electric resistance over the first conductive layer. A part of the lower layer projected from the end section of the upper layer is bonded with ITO.



FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT,
RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— with international search report